Claims

1. A polyimide film obtainable by reacting an aromatic diamine with an aromatic tetracarbonic acid anhydride, which has a planar orientation coefficient of 0.79-0.89 as measured by the X-ray diffraction method, and a dielectric constant of 2.7-3.1 at 100 GHz as measured by a cavity resonance perturbation method.

2. The polyimide film of claim 1, having a dielectric loss tangent at 100 GHz of 0.0001-0.03 as measured by the cavity resonance perturbation method.

3. The polyimide film of claim 1 or 2, having dielectric constants of 2.7-3.1 at 1 GHz and 2.6-3.0 at 100 GHz, as measured by the cavity resonance perturbation method.

4. The polyimide film of any of claims 1 to 3, which has a density of 1.47 g/cm^3 - 1.55 g/cm^3.

5. A polyimide film obtainable by reacting an aromatic diamine with an aromatic tetracarbonic acid anhydride, wherein the amount of water vaporized at a high temperature during heating at 500°C for 10 sec of the film immediately after helium purge at 170°C for 7 min and preliminary drying is not more than 5000 ppm.

6. The polyimide film of any of claims 1 to 5, wherein the ratio ($\varepsilon_{65}/\varepsilon_D$) of the dielectric constant ε_{65} at 100 GHz of the film humidity-conditioned under the constant temperature and humidity conditions of 20°C, 65% RH for 94 hr, as measured by a cavity resonance perturbation method, to the dielectric constant εD at 100 GHz of the film vacuum dried under the conditions of 120°C, for 24 hr, as measured by a cavity resonance perturbation

method, is within the range of 1.00-1.10.

7. A polyimide film obtainable by reacting an aromatic diamine with an aromatic tetracarbonic acid anhydride, wherein the absolute value of the difference between the surface planar orientation degree of one surface (surface A) and the surface planar orientation degree of the other surface (surface B) of the film is 0-2.

8. The polyimide film of any of claims 1 to 7, wherein the surface planar orientation degree of a surface having a higher surface planar orientation degree is not more than 15.

9. The polyimide film of any of claims 1 to 8, which has a curling degree of 0%-5%.

10. The polyimide film of any of claims 1 to 9, wherein the aromatic diamine has a benzoxazole structure.

11. A base substrate for printed wiring assemblies, which comprises the polyimide film of any of claims 1 to 10.

12. A method of producing a polyimide film, which comprises reacting an aromatic diamine with an aromatic tetracarbonic acid anhydride to give polyamide acid, casting a solution thereof on a support and drying the solution and the like to give a self-supporting polyimide precursor film (green film) and polyimidating said precursor film, wherein the polyimide precursor film (green film) satisfies all the relationships shown by the following formulas between an imidation rate Aim of one surface side (surface A side) and an imidation rate Bim of the other surface side (surface B side) of

the polyimide precursor film (green film) and said polyimide precursor film is subjected to imidation.

formula 1; $|Aim-Bim| \leq 5$

formula 2; $0 \leq Aim \leq 15$

formula 3; $0 \leq Bim \leq 15$